#### **Meeting Minutes Transmittal**

#### LIQUID PROCESSING AND CAPSULE STORAGE

Project Managers Meeting 825 Jadwin/Room 590A Hanford, Washington January 18, 2007

The undersigned indicate by their signatures that these meeting minutes reflect the actual occurrences of the above dated Project Managers Meeting. Signatures denote concurrence with content only and are not intended to imply agreement to any commitments.

Project Manager, Ecology

Date:

Date:

7/27/2

Project Manager Representative, RL

Project Manager Representative, FH

Data

2/22/07

Project Manager Representative, FH

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5-2-8 T-2-8 200 LPCS Administrative RecordH6-08OM HolgadoA6-39DG SingletonH0-57KA ConawayH0-57

**EDMC** 

# LIQUID PROCESSING AND CAPSULE STORAGE PROJECT MEETING 825 Jadwin/Room 590A Hanford, Washington January 18, 2007

10:45 a.m. to 11:15 a.m.

#### Agenda

- I. Approval of November 16, 2006 Liquid Processing and Capsule Storage Project Meeting Minutes (Ecology/DOE-RL/FH)
- II. Operational Status
- III. Project Specific Issues
  - A. Status of RCRA Permit Revisions
  - B. 310/340 Status
  - C. ST4502 Permit Status
  - D. ST4500 Permit Status
  - E. LERF
- IV. General Discussions
- V. Status of Actions
- VI. New Action Items
- VII. Documents for Submittal to the Administrative Record
- VIII. Next Project Managers Meeting

# LIQUID PROCESSING AND CAPSULE STORAGE PROJECT MEETING MINUTES

Project Managers Meeting 825 Jadwin/Room 590A Hanford, Washington

January 18, 2007

- I. Approval of November 16, 2006 Liquid Processing and Capsule Storage Project Meeting Minutes (Ecology/DOE-RL/FH). The PMM minutes were approved.
- II. Operational Status (Fen Simmons FH)

LIQUID EFFLUENT RETENTION FACILITY (LERF)

Waste Inventory (1/02/07)

- Basin 42 Liquid Level: 9.3 ft or 2.1 Mgal
- Basin 43 Liquid Level: 9.5 ft or 2.2 Mgal
- Basin 44 Liquid Level: 14.7 ft or 4.1 Mgal

#### Received 53 tanker shipments during December:

- Basin 42 received 49,000 gallons leachate from the mixed waste burial trenches
- Purgewater tank received 23,500 gallons purgewater in 47 tankers

#### EFFLUENT TREATMENT FACILITY (ETF)

Completed Basin 44 campaign (CERCLA) and started outage for Thin Film Dryer rotor replacement

#### 200 AREA TREATED EFFLUENT DISPOSAL FACILITY (TEDF)

Receiving wastewater at 73 gpm

#### 300 AREA TREATED EFFLUENT DISPOSAL FACILITY (310 TEDF)

Operating normally

#### 340 COMPLEX

- Nothing to report
- III. Project Specific Issues
  - A. Status of RCRA Permit Revisions
    - 1. Fen Simmons (FH) reported that a Revision 1A permit modification is being prepared.
  - B. 310/340 Status
    - 1. There was no change in status to report.
  - C. ST4502 Permit Status
    - 1. Kathy Conaway (Ecology) stated that Michelle Mandis (Ecology) is continuing preparation of the updated fact sheet after an extended sick leave.
  - D. ST4500 Permit Status
    - 1. An updated fact sheet is being prepared by Ecology.

#### E. LERF

1. Ms. Conaway stated that FH incorporated changes to the draft permit conditions, which are now with Ecology. Until the groundwater issues in the sitewide permit are resolved, the unit specific permits that contain a groundwater portion are on hold.

#### IV. General Discussions

1. Ms. Conaway presented two questions to Mr. Simmons from Ms. Mandis: 1) will the regeneration of the ion exchange columns modify the wastewater treatment system in any way; 2) is FH applying WAC 173-303 or WAC 173-216. Ms. Conaway will follow up with an e-mail of the questions.

#### V. Status of Actions (report attached)

- A. 1129 Finalization of the permit conditions is pending the sitewide groundwater permit issues.
- B. 1585 The design report for the Solidification Treatment Unit was provided to Ecology December 13 2006. This action is closed.

#### VI. New Action Items

A. There were no new action items.

#### VII. Documents for submittal to the Administrative Record

A. The Technical Memo for the new Solidification Treatment Unit (STU).

#### VIII. Next Project Managers Meeting

A. The next PMM was scheduled for February 22, 2007.

# Environmental Request Information System Task Status Report

Group by Facility
Filtered on: Status = Open; Category = PMM

#### Liquids Processing & Capsule Storage

Task ID:

Pro	cessing & Cap	sule Storage					
	1129 Finalize LERF permit conditions for Ecology approval.				Task Lead: Hildebrand, Doug		
	Waste Stabiliza	ition and Dispositio	POC: Szelmeczka, Roger				
	Classification:	Open					
	Category:	PMM					
	- •	Project	DOE	Agency			
	Due:	N/A	N/A	N/A			
	Complete: Closed Date:	N/A	N/A	N/A			
	Description:	Finalize LERF	RF permit conditions for Ecology approval.				
		Date	Status				
		1/18/2007 11/16/2006	A meeting will	the permit conditions is pending the s be held December 5 to discuss the LE at to Ecology November 28.	itewide groundwater permit issues. RF groundwater evaluation planned permitting conditions, information		
		10/26/2006	Ecology transn		d the contractors, and provided comments. RL and contractors will		
		9/28/2006	A meeting was		ss LERF permit conditions. Ecology is preparing to transmit no LERF permit conditions.		
		8/24/2006		vill schedule a meeting for the first we			
		7/27/2006	The parties me	et on July 26, 2006. RL will provide of	mments to Ecology on the evaluation plan permit conditions.		
		6/22/2006	Ecology transn	nitted the draft permit conditions to RI	/FH on May 18, 2006.		
		4/27/2006		completed the permit conditions in Fe	oruary 2006. The permit conditions remain with Ecology and have		
		2/23/2006	LERF permit or frame was esti	onditions have been drafted by Ecolog mated to be two weeks.	by and will be transmitted to RL once they are finalized. The time		
		1/26/2006		ovide the permit conditions in Februar			
		10/27/2005	Ecology is final	lizing the permit language for its hydro	geology review.		
		9/22/2005		reviewing the permit conditions.			
		8/25/2005	Ecology is still	reviewing the permit conditions.			
		7/28/2005	Ecology is still	reviewing the permit conditions.			
		6/29/2005	A meeting will	be scheduled after Ecology sends the	draft permit conditions to RL.		
		5/26/2005	A meeting will I	be scheduled after Ecology sends the	draft permit conditions to RL.		
		3/23/2005	RL will schedu	le the meeting for April 12, 2005.	•		
		2/23/2005	The meeting w	ith Ecology was not held as previously	reported. The topic of the discussion will be to explore the		
					ing with the Eggleon groundwater around a school of the 3/67. A		

A meeting was held January 6, 2005.

Task opened.

A meeting is tentatively scheduled for January 6, 2005.

1/27/2005

12/16/2004 10/28/2004 monitoring requirements for LERF. An internal meeting with the Ecology groundwater group is scheduled for 3/17. A meeting with FH and RL will be scheduled after this meeting is held.

# Design Report for the

Solidification Treatment Unit

#### 1.0 INTRODUCTION

#### 1.1 Objective of the New Unit

The STU will treat and solidify concentrate from the existing ETF evaporator by mixing the concentrate with dry, cementitious raw materials (e.g., Portland cement, fly ash, blast furnace slag, and/or lime).

The waste concentrate will be cooled, using a concentrate cooler for optimal processing. The cooled concentrate would be stored and pH adjusted in the existing concentrate tanks before being processed. The waste concentrate will be metered as it is fed to the grout mixer using concentrate circulation pumps. The aforementioned raw materials would be stored in separate silos located outside of, but adjacent to, the ETF. The raw materials will be individually weighed in weigh hoppers underneath the silos, then sequentially vacuum-transferred into a feed hopper (vacuum filter/receiver) located above the grout mixer, using a vacuum conveyance system. The feed hopper separates the air from the solids. After all ingredients are transferred into the feed hopper, they would be gravity-fed into the grout mixer through a rotary feeder.

The ingredients will be thoroughly mixed in the mixer until the mixture becomes homogenous. Once mixing is completed, the grouted waste would be emptied from the mixer by gravity into a waste containment bag supported in a loading cart located directly below the grout mixer. Once the mixer is empty, the loading cart containing the solidified waste containment bag would be removed from the loading area and staged to allow the grouted waste to set. Once the grouted waste has set, the solidification waste containment bag will be sealed and removed from the loading cart, then cleaned surveyed, and weighed before it is transported on pallets, using a forklift, to an outside waste storage area for curing, awaiting shipment to final disposal on the Hanford Site. The loading carts will be reused.

#### 1.2 Description of Current Plant Operation (Thin Film Dryer)

The Evaporator brine is pumped to the thin film dryer that is heated by steam. As the evaporator brine flows down the length of the dryer, the waste is dried. The dried film, or powder, is scraped off the dryer cylinder by blades attached to a rotating shaft. The powder is funneled through a cone shaped powder hopper at the bottom of the dryer and into the container handling system.

A 55-gallon drum is raised underneath the dryer funnel. The container is sealed to the dryer and a rotary valve begins the transfer of powder to the empty drum. The drum is filled to a predetermined level, capped, and moved along a conveyor to the station air lock. The container is moved onto the conveyer by remote control. The drums are labeled, placed on pallets, and moved by forklift to the drum handling room where they are storage until final disposal on the Hanford Site.

Overhead vapor released by the drying of the evaporator brine is condensed in the distillate condenser. Excess heat is removed from the distillate by a water cooled heat exchanger. Part of the distillate is circulated back to the condenser spray nozzles. The remaining distillate is pumped to the head end of the main treatment train for processing.

#### 1.3 Current Solid Waste Requirements

Solid waste generated at he ETF must meet the disposal site acceptance criteria. This criteria is documented in HNF-EP-0063, Rev. 12, *Hanford Site Solid Waste Acceptance Criteria*, and BHI-00139, Rev. 4, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*.

#### 1.4 Current Solid Waste Characterization

The secondary treatment train typically processes the following by-products generated from the main treatment train: dissolved solids (inorganic metals/salts) removed from the reverse osmosis unit operation, suspended solids from filter backwash, and regeneration waste from the ion exchange system. These contaminates are dried to a powder. The primary constituents in the powder depend on the wastewater being treated. Typically the powder is made up of one or more of the compounds, sodium sulfate, calcium sulfate, sodium nitrate, sodium chloride, ammonium sulfate, and trace amounts of heavy metals.

#### 2.0 DESCRIPTION OF PROPOSED MODIFICATIONS (STU)

#### 2.1 Reason for Modification

Operation of the ETF thin-film dryer has been problematic in the past. Groundwater and other feed streams that differ significantly in composition from that identified in the dryer design specification have caused problems. Feed streams outside the design specification coupled with variation in feed density resulted in hard material buildup on the internals of the dryer. The material buildup eventually caused failure of the rotor blades, and frequent maintenance has been required. Design of the thin-film dryer operation has provided less than adequate contamination control and increased personnel exposure.

Disposal of solid waste in powder form has also become problematic. In the past, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) powder drums were wetted prior to disposal at the Environmental Restoration Disposal Facility (ERDF) to prevent the powder from going airborne when the drums are disposed of by crushing. Because of the variability in the amount of water needed to wet the drums adequately, this practice became unacceptable. Not enough water added to the drums caused airborne concerns, and too much water caused free liquid that is unacceptable for disposal.

One option to address the airborne concern is to dispose of the drums within structural vaults that will be constructed in the ERDF disposal cells, whereby there would no longer be a requirement to add water to the drums. However, this method is expensive. A second

alternative is for ERDF to run a grouting mixer and grout the powder. The powder drums would again be wetted prior to shipment to ERDF to avoid airborne issues when emptying the drums in the grout mixer, but excess water would be acceptable. This alternative is only an interim measure until the ETF has the ability to grout secondary waste, since grouting powder drums at ERDF is labor intensive and exposes workers to additional hazards.

Criteria for disposal of RCRA powder drums at the Mixed Waste Trench have also changed over the past year. In the past, the only reasons for monolithing containers were for RCRA macroencapsulation or Category III RAD stabilization. The Mixed Waste Trench recently instituted a pound-per-square-inch (psi) requirement for wastes disposed in the Mixed Waste Trench. The purpose of the psi requirement is to ensure safe use of the crane when it is operating on a waste layer. Monolithing, which is an expensive process, will likely be required for significantly more powder drums than in the past because of problems passing void space verification tests as the powder settles in the drums.

For these reasons an alternative technology is needed to process the evaporator brine concentrate to a waste form suitable for disposal. The STU project provides a cement-based stabilization method that meets progressively stringent disposal criteria. Cement-based stabilization converts the hazardous waste into their least soluble, mobile, or toxic forms.

#### 2.1 Overall Effects of the Unit on the Facility and Other Units it Impacts

The STU will be the last unit operation of the ETF secondary treatment train and will supplement the existing thin film dryer. The STU will not impact other ETF unit operations. STU will tie-in to existing ETF utilities (e.g., instrument air, chilled water) that have spare capacity. STU will have its own HVAC system, separate from the ETF HVAC system. Verification water from the ETF will be used as rinse water in the STU and sent back to the head end of the ETF for treatment. The rinse water will be a small volume and will not effect the overall capacity of the ETF to treat other wastewaters.

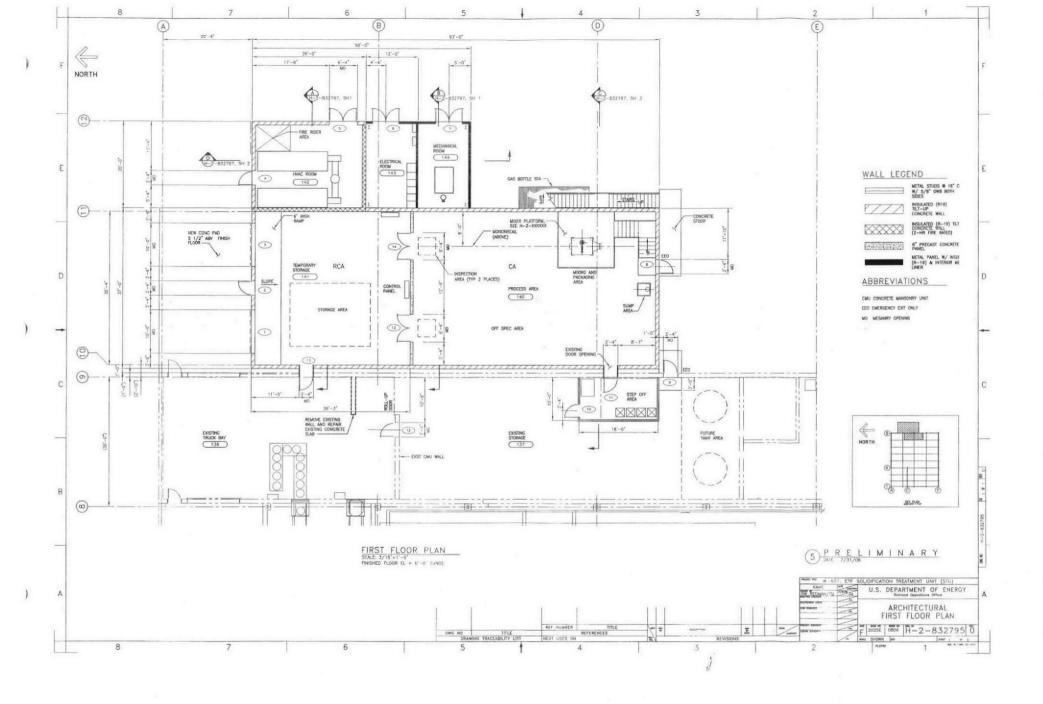
#### 2.2 Changes/Modifications Required in the Facility to Support the STU

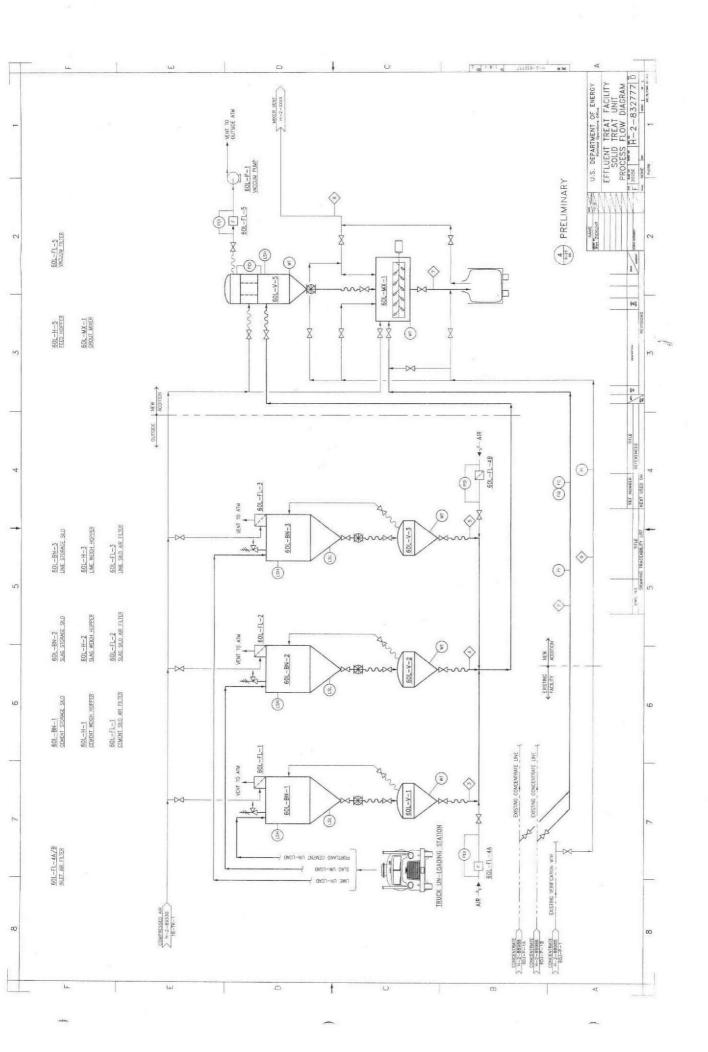
No changes/modifications to the existing ETF are necessary other than tie-ins to utilities and process piping tie-ins to STU. STU will be an annex to the existing ETF building.

#### 2.3 Timetable for Final Design and Construction

Final design of STU is schedule to be completed by 2/2/2007 with construction to start in May of 2007. Construction is scheduled to be completed in January of 2008.

REMOVE EXST RM 137 EGRESS DOOR, CMU WALLS, ROOF DECK & FAD REF H-2-89108, S BLDG 2025E PROCESS AREA 00 \$ 20' ROAD VERIFICATION TANK 60H-TK-1A (95) (95) (95) (95) 6" RW (PVC) (N48030) EMPTY DRUM STORAGE AREA SCALE IN FEET REF NUMBER REFERENCES NORTH -NO FIRE HYDRAIT
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## LIQUID PROCESSING AND CAPSULE STORAGE

Project Managers Meeting 825 Jadwin/Room 590A Hanford, Washington

**January 18, 2007** 

### Attendance List

Name	Organization	Phone Number
Lathy Knox	Court Reporting	946-5535
Brain Dixon	FH (EP/EFS	376-7053
Kathy Conaway	ECY	312-1890
Oscar M. Holgah	DOE-RL	373-0589
Jennifer Nuzum	FH /EP	373-7185
Here Szendre	Ecology	372-7911
Darlens Hagel	FH/ED	373-0431
TONY MEKARUS	DOE	376-8981
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Jelecon:		
Ten Simmons	FH/EA	
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